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Applicants: Oliver P. Peoples, Lara L. Madison, and Gjalt Huisman

Serial No.: 09/364,847

Art Unit: 1652

Filed: July 30, 1999

Examiner: D. Steadman

For: *ENZYMES FOR BIOPOLYMER PRODUCTION*

Assistant Commissioner for Patents
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, and Further to the Information Disclosure Statement mailed January 5, 2000, enclosed are ten (10) pages of Form PTO-1449 and copies of each document cited therein. These documents were all listed in the Information Disclosure Statement mailed January 5, 2000, but the Examiner has requested additional copies of the references cited.

It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any fees to Deposit Order Account No. 50-1667.

U.S. Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
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U.S.S.N.: 09/364,847
 Filed: July 30, 1999
 INFORMATION DISCLOSURE STATEMENT

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U.S.S.N.: 09/364,847
Filed: July 30, 1999
INFORMATION DISCLOSURE STATEMENT

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,



Patrea L. Pabst
Reg. No. 31,284

Dated: June 25, 2001

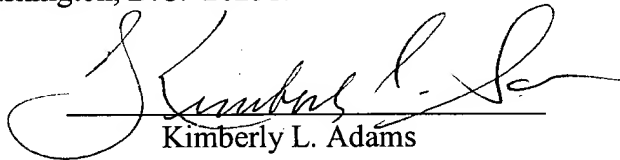
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INFORMATION DISCLOSURE STATEMENT

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Kimberly L. Adams



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Substitute for form 1449A/PTO		Complete if Known	
 (use as many sheets as necessary)		Application Number	09/364,847
		Filing Date	July 30, 1999
		First Named Inventor	Oliver P. Peoples
		Group Art Unit	1649
		Examiner Name	
Sheet 1 of 10	Attorney Docket Number	MBX 030	

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	US Patent Document		Name of Patentee or Applicant of Cited Document	Date of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
		5,004,863		Umbeck	04-02-1991	
		5,015,580		Christou, et al.	05-14-1991	
		5,024,944		Collins, et al.	06-18-1991	
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		5,169,770		Chee, et al.	12-08-1992	
		5,188,958		Moloney, et al.	02-23-1993	
		5,229,279		Peoples, et al.	07-23-1993	
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		5,420,027		Fisher, et al.	05-30-1995	
		5,420,034		Kridl, et al.	05-30-1995	
		5,463,174		Moloney, et al.	10-31-1995	
		5,464,765		Coffee, et al.	11-07-1995	
		5,502,273		Bright, et al.	03-26-1996	
		5,519,164		Müllner, et al.	05-21-1996	
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		5,530,196		Fraley, et al.	06-25-1996	
		5,534,432		Peoples, et al.	07-09-1996	

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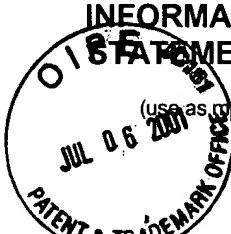
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Substitute for form 1449A/PTO		Complete if Known	
		Application Number	09/364,847
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) 		Filing Date	July 30, 1999
		First Named Inventor	Oliver P. Peoples
		Group Art Unit	1649
		Examiner Name	
Sheet	10	Attorney Docket Number	MBX 030

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	1	BÜLOW & MOSBACH, "Multienzyme systems obtained by gene fusion," <i>Trends Biotechnol.</i> 9(7):226-31 (1991).	
	2	BÜLOW, "Characterization of an artificial bifunctional enzyme, β -galactosidase/galactokinase, prepared by gene fusion," <i>Eur. J. Biochem.</i> 163(3):443-48 (1987).	
	3	BÜLOW, "Preparation of artificial bifunctional enzymes by gene fusion," <i>Biochem. Soc. Symp.</i> 57:123-33 (1990).	
	4	CARLSSON, et al., "Engineering of lactose metabolism in <i>E. coli</i> by introducing β -galactosidase/galactokinase fusion enzymes," <i>Biotech. Lett.</i> 14:439-44 (1992).	
	5	CEVALLOS, et al., "Genetic and physiological characterization of a <i>Rhizobium etli</i> mutant strain unable to synthesize poly- β -hydroxybutyrate," <i>J. Bacteriol.</i> 178(6):1646-54 (1996).	
	6	CHOI, et al., "Cloning of the <i>Alcaligenes latus</i> polyhydroxyalkanoate biosynthesis genes and use of these genes for enhanced production of Poly(3-hydroxybutyrate) in <i>Escherichia coli</i> ," <i>Appl. Environ. Microbiol.</i> 64(12):4897-903 (1998).	
	7	CUBITT, et. al., "Understanding, improving and using green fluorescent proteins," <i>Trends Biochem. Sci.</i> 20(11):448-55 (1995).	
	8	DALE & OW, "Gene transfer with subsequent removal of the selection gene from the host genome," <i>Proc. Natl. Acad. Sci. USA.</i> 88(23):10558-62 (1991).	
	9	FISHER, et al., "High-level expression in <i>Escherichia coli</i> of enzymatically active fusion proteins containing the domains of mammalian cytochromes P450 and NADPH-P450 reductase flavoprotein," <i>Proc. Natl. Acad. Sci. USA</i> 89(22):10817-21 (1992).	
	10	FROMM, et al., "Inheritance and expression of chimeric genes in the progeny of transgenic maize plants," <i>Biotechnology (NY)</i> 8(9):833-39 (1990).	

Examiner's Signature	Date Considered
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant to place a check mark here if English language Translation is attached.

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		Application Number	09/364,847
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	July 30, 1999
		First Named Inventor	Oliver P. Peoples
		Group Art Unit	1649
		Examiner Name	
		Attorney Docket Number	MBX 030
Sheet	5	10	

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
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	1	FUKUI & DOI, "Cloning and analysis of the poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) biosynthesis genes of <i>Aeromonas caviae</i> ," <i>J. Bacteriol.</i> 179(15):4821-30 (1997).	
	2	FUKUI, et al., "Expression and characterization of (R)-specific enoyl coenzyme A hydratase involved in polyhydroxyalkanoate biosynthesis by <i>Aeromonas caviae</i> ," <i>J. Bacteriol.</i> 180(3):667-73 (1998).	
	3	GASSER & FRALEY, "Genetically Engineering Plants for Crop Improvement," <i>Science</i> 244:1293-99 (1989).	
	4	HAUSER, et al., Translational regulation of chloroplast genes. Proteins binding to the 5'-untranslated regions of chloroplast mRNAs in <i>Chlamydomonas reinhardtii</i> ," <i>J. Biol. Chem.</i> 271(3):1486-97 (1996).	
	5	HUANG, "Oil bodies and oleosins in seeds," <i>Annu. Rev. Plant Physiol. Plant Mol. Biol.</i> 43:177-200 (1992).	
	6	HUISMAN, et al., "Metabolism of poly(3-hydroxyalkanoates) (PHAs) by <i>Pseudomonas oleovorans</i> . Identification and sequences of genes and function of the encoded proteins in the synthesis and degradation of PHA," <i>J. Biol. Chem.</i> 266(4):2191-08 (1991).	
	7	HUSTEDE & STEINBÜCHEL, "Characterization of the polyhydroxyalkanoate synthase gene locus of <i>Rhodobacter sphaeroides</i> ," <i>Biotechnol. Lett.</i> 15:709-14 (1993).	
	8	HUSTEDE, et al., "Cloning of poly(3-hydroxybutyric acid) synthase genes of <i>Rhodobacter sphaeroides</i> and <i>Rhodospirillum rubrum</i> and heterologous expression in <i>Alcaligenes eutrophus</i> ," <i>FEMS Microbiol. Lett.</i> 93:285-90 (1992).	
	9	ISHIDA, et al., "High efficiency transformation of maize (<i>Zea mays</i> L.) mediated by <i>Agrobacterium tumefaciens</i> ," <i>Nat. Biotechnol.</i> 14(6):745-50 (1996).	
	10	JEFFERSON, et al., "GUS fusions: β -glucuronidase as a sensitive and versatile gene fusion marker in higher plants," <i>EMBO J.</i> 6(13):3901-07 (1987).	

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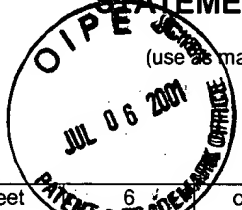
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)		Application Number	09/364,847
		Filing Date	July 30, 1999
		First Named Inventor	Oliver P. Peoples
		Group Art Unit	1649
		Examiner Name	
Sheet 6 of 10	Attorney Docket Number	MBX 030	

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
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		KANEKO, et al., "Sequence analysis of the genome of the unicellular cyanobacterium <i>Synechocystis</i> sp. strain PCC6803. II. Sequence determination of the entire genome and assignment of potential protein-coding regions," <i>DNA Res.</i> 3(3):109-36 (1996).	
		KYOZUKA, et al., "Anaerobic induction and tissue-specific expression of maize <i>Adh1</i> promoter in transgenic rice plants and their progeny," <i>Mol. Gen. Genet.</i> 228(1-2):40-48 (1991).	
		LIEBERGESELL & STEINBÜCHEL, "Cloning and nucleotide sequences of genes relevant for biosynthesis of poly(3-hydroxybutyric acid) in <i>Chromatium vinosum</i> strain D," <i>Eur. J. Biochem.</i> 209:135-50 (1992).	
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		LJUNGCRANTZ, et al., "Construction and characterization of a recombinant tripartite enzyme, galactose dehydrogenase/ β -galactosidase/galactokinase," <i>FEBS Lett.</i> 275(1-2):91-94 (1990).	
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		MALIGA, et al., <u>Methods in Plant Molecular Biology: A Laboratory Course Manual</u> , Cold Spring Laboratory Press:New York, 1995.	
		MCBRIDE, et al., "Controlled expression of plastid transgenes in plants based on a nuclear DNA-encoded and plastid-targeted T7 RNA polymerase," <i>Proc. Natl. Acad. Sci. U S A.</i> 91(15):7301-05 (1994).	
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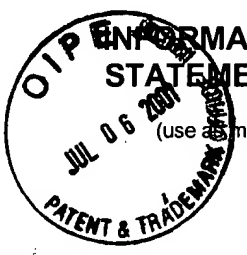
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		First Named Inventor	Oliver P. Peoples		
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		MOLONEY, et al., "High efficiency transformation of <i>Brassica napus</i> using <i>Agrobacterium</i> vectors," <i>Plant Cell Reports</i> 8:238-42 (1989).	
		NISHIMURA, et al., "Purification and properties of β -ketothiolase from <i>Zoogloea ramigera</i> ," <i>Arch. Microbiol.</i> 116(1):21-27 (1978).	
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		PEOPLES & SINSKEY, "Poly- β -hydroxybutyrate (PHB) Biosynthesis in <i>Alcaligenes eutrophus</i> H16," <i>J. Biol. Chem.</i> 264(26):15298-303 (1989).	
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		PIEPER & STEINBUCHER, "Identification, cloning and sequence analysis of the poly(3-hydroxyalkanoic acid) synthase gene of the gram-positive bacterium <i>Rhodococcus ruber</i> ," <i>FEMS Microbiol. Lett.</i> 75(1):73-79 (1992).	
		PLANT, et al., "Regulation of an <i>Arabidopsis</i> oleosin gene promoter in transgenic <i>Brassica napus</i> ," <i>Plant Mol. Biol.</i> 25(2):193-205 (1994).	

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		POIRIER, et al., "Polyhydroxybutyrate, a Biodegradable Thermoplastic, Produced in Transgenic Plants," <i>Science</i> 256:520-23 (1992).	
		POTRYKUS & SPANGENBERG, <i>Gene Transfer to Plants</i> , Springer-Verlag:Berlin Heidelberg New York, 1995.	
		ROWLEY & HERMAN, "The upstream domain of soybean oleosin genes contains regulatory elements similar to those of legume storage proteins," <i>Biochim. Biophys. Acta.</i> 1345(1):1-4 (1997).	
		SAITO, et al. "An NADP-linked acetoacetyl CoA reductase from <i>Zoogloea ramigera</i> ," <i>Arch. Microbiol.</i> 114(3):211-17 (1977).	
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		STEINBÜCHEL & VALENTIN, "Diversity of bacterial polyhydroxyalkanoic acids," <i>FEMS Microbiol. Lett.</i> 128:219-28 (1995).	

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	•	STEINBUCHEL, et al., "Considerations on the structure and biochemistry of bacterial polyhydroxyalkanoic acid inclusions," <i>Can. J. Microbiol.</i> 41 Suppl 1:94-105 (1995).	
	•	STEMMER, "DNA shuffling by random fragmentation and reassembly: <i>in vitro</i> recombination for molecular evolution," <i>Proc. Natl. Acad. Sci. USA</i> 91(22):10747-51 (1994).	
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	•	TIMM & STEINBUCHEL, "Cloning and molecular analysis of the poly(3-hydroxyalkanoic acid) gene locus of <i>Pseudomonas aeruginosa</i> PAO1," <i>Eur. J. Biochem.</i> 209(1):15-30 (1992).	
	•	TOMBOLINI, et al., "Poly-β-hydroxybutyrate (PHB) biosynthetic genes in <i>Rhizobium meliloti</i> 41," <i>Microbiology</i> . 141 (Pt 10):2553-59 (1995).	
	•	UEDA, et al., "Molecular analysis of the poly(3-hydroxyalkanoate) synthase gene from a methylotrophic bacterium, <i>Paracoccus denitrificans</i> ," <i>J. Bacteriol.</i> 178(3):774-79 (1996).	
	•	UMEDA, et al., "Cloning and sequence analysis of the poly (3-hydroxyalkanoic acid)-synthesis genes of <i>Pseudomonas acidophila</i> ," <i>Appl. Biochem. Biotechnol.</i> 70-72:341-52 (1998).	
	•	VALENTIN, et al., "Cloning and characterization of the <i>Methylobacterium extorquens</i> polyhydroxyalkanoic-acid-synthase structural gene," <i>Appl. Microbiol. Biotechnol.</i> 39(3):309-17 (1993).	
	•	WIECZOREK, et al., "Analysis of a 24-kilodalton protein associated with the polyhydroxyalkanoic acid granules in <i>Alcaligenes eutrophus</i> ," <i>J. Bacteriol.</i> 177(9):2425-35 (1995).	

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		WIECZOREK, et al., "Occurrence of polyhydroxyalkanoic acid granule-associated proteins related to the <i>Alcaligenes eutrophus</i> H16 GA24 protein in other bacteria," <i>FEMS Microbiol. Lett.</i> 135(1):23-30 (1996).	
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